REMARKS

Claims 1-39, all the claims originally pending in the application, stand rejected. Claims 10 and 11 have been cancelled without prejudice or disclaimer per the Examiner's request. Claims 12, 13 and 15 have been amended. Claim 4 remains in the case as "withdrawn" because of its dependency on claim 1, which is considered to be patentable. Accordingly, claim 4 should also be considered patentable and is retained in the application.

Claim Rejections - 35 U.S.C. § 112

Claim 15 is rejected under 35 U.S.C. § 112, second paragraph as being indefinite due to certain typographical errors in the claim. These errors have been corrected.

Claim Rejections - 35 U.S.C. § 102

Claims 10-16, 27, 28 and 30 are rejected under 35 U.S.C. § 102(e) as being anticipated by the newly cited patent to Raychaudhuri (5,638,371). This rejection is traversed for at least the following reasons.

With respect to claims 10-11, the rejection is moot in view of the cancellation of these claims as non-elected.

With regard to the rejection of claims 12-16, the invention concerns an arrangement of signals in a cell/packet frame is defined which has a <u>compressed header</u>. That header comprises "a first number of bytes <u>representing</u> an original header portion," as expressly stated in claims 12 and 13. The term "representing" indicates that the first number of bytes comprises information <u>different from</u> the content of the original header portion (a second number of bytes). Moreover, claim 12 specifically states that the first number of bytes is two octets, while claim 13 specifies that the first number of bytes is at least one octet, the second number of bytes being a greater number of octets. This compression feature is accomplished by using a header compression table, as illustrated in Fig. 6A, and decompression table, as illustrated in Fig. 8A and described at least on pages 16-20 of the present application. The compression is accomplished by converting 4 out of 5 octets in to a <u>lookup table index</u> comprising a 2-octet set, as explained at page 16, and transmitting that lookup table index in the arrangement of signals. A separate cell AHCUC for unrecorded headers is prepared and also sent, if necessary. The claims have been amended to

emphasize that the compressed header contains a table index in place of an original 4 byte header.

Claims 27, 28 and 30 concern a method of communicating cell/packets, which also concern separating the header portion from a cell/packet payload (step (a)) and compressing the content of the header using a lookup table (step (c)), followed by transmitting the compressed header content with payload in a frame (step (d)) and coupled with corresponding reception, decompression, etc. steps.

Raychaudhuri '371 concerns a medium access control (MAC) layer protocol for use in wireless ATM that can handle CBR, VBR and ABR, and capable of handling both connectionless and connection-oriented virtual circuit modes, with service parameters (col. 3, lines 33-35). The MAC features include dynamic allocation of subframe capacities, i.e., moving boundaries and assignment of slots. As illustrated in Fig. 1, the system is focused on a short range PCS network 14 that services a single multiservices wireless network 10 containing multiple cells 12. The reference mentions the compression of a header at col. 3, lines 13-15 and col. 4, lines 60-61, stating in the latter case that "the ATM header itself is maintained for network and higher level services in the wireless segment, although some compression may be applied to certain fields (e.g., VPI/VCI) for efficiency." The patent further discloses at col. 8, lines 45-56 that a conventional header has 4 bytes but that a compressed header has 2 bytes. However, this disclosure provides no teaching as to how the compression is implemented. In particular, there certainly is no teaching of the use of a look-up table, and no teaching of the use of messages to pass lookup table values across the network. While there is a mention of the use of control packets, (col. 8, line 60-col. 9, line 14), the disclosure is silent with respect to the manner in which compression information is transmitted, and certainly does not teach the use of a table to hold compression information with table content being exchanged across the network as a table index, as now claimed in claims 12-16. Further, nowhere in Raychaudhuri '371 is there a teaching that information which defines the correspondence between a compressed header signal and a reconstituted header signal may be exchanged between transmitter and receiver such that the lookup tables used contain current information.

Applicant respectfully submits that in the absence of a clear teaching of a table-based implementation of a header compression technique as claimed would render the current claims patentable. The failure to mention the technique used for compression in Raychaudhuri '371 only indicates that nothing had been developed by the author or that one of a variety of techniques may have been intended. At the least, it is clear that the patent did not have Applicants' claimed technique in mind.

Claim Rejections - 35 U.S.C. § 103

Claims 1, 3-9, 17-26, 32 and 37-39 are rejected as being unpatentable over Raychaudhuri '371 in view of Raychaudhuri '791 (5,684,791). This rejection is traversed for at least the following reasons.

The present invention as defined in the system of independent claim 1, the apparatus for a satellite/wireless communication system of independent claim 17, the apparatus for a frame relay wireless system of independent claim 23, and the apparatus of independent claim 37 all relate to the compression of headers and the use of lookup tables . In particular, based on the teachings at pages 16-19, with reference to Figs. 4-7, the header is stripped off of a packet or cell and subjected to compression for separate transmission. In exemplary embodiments at page 16, the five octets of a header are separated from the 48 octets of data and subject to compression, taking the four octets related to virtual circuit and virtual path connections and <u>converting them to a lookup table index of two octets</u>. The lookup table index relates to an entry in both a transmission side table and a receiver side table. As previously noted, if there is no table entry, a unique AHCUC cell is sent with the table information. The HEC checksum is not compressed.

Claim 1, thus requires a "means for compressing said separated header <u>using a lookup table</u>" and combining the compressed header with the payload to form a compressed header cell. Claims 17 and 23 also require similar "means" to perform such function. Claim 37 specifies a detector, a compressor and a combining unit, where the compressor <u>uses a lookup table</u>. All of these claims therefore specify a technique that requires a cell to carry the lookup table index information for a header look up table.

Raychaudhuri '371 already has been distinguished by noting that it does not teach the use of any lookup tables for purposes of header compression and does not concern the generation of a lookup table index for transmission to a receiver, where that index is used to access a corresponding table and retrieve the compressed header.

The Examiner admits that Raychaudhuri '371 fails to disclose a processing step from the ATM layer to the Physical layer. The Examiner looks to Raychaudhuri '791 for a teaching of header compression and asserts that the compression is performed using a lookup table, with reference to Fig. 2. However, Applicant respectfully submits that the Examiner is mistaken in this regard. With reference to the specification at col. 5, lines 30-44, the patent mentions a 2-byte compressed header (as in the contemporaneous Raychaudhuri '371 reference) but does not mention any lookup table. The only table in Fig. 2 is a "schedule table" 44 that resides in the MAC layer, but there is no mention at any place in the specification where table 44 is discussed (e.g., col. 5) that the table is used for header compression. Indeed, the teachings at col. 5, lines 30-44 would instead suggest (without clearly teaching) that the ATM control 58 (Fig. 3A) is used to convey compression information but is not a lookup table index as disclosed.

With regard to claim 3, the Examiner looks to the interleaver in Raychaudhuri '371 for a relevant teaching. However, that interleaver is totally different. Interleave as defined in **Newton's Telecom Dictionary** (Harry Newton CMP Books, San Francisco 2003, ISBN: 1-57820-307-4) as

> 1.. The transmission of pulses from two or more digital sources in time-division sequence over a single path.

> 2. A data communication technique, used in conjunction with error-correcting codes, to reduce the number of undetected burst errors. In the interleaving process, code symbols are reordered before transmission in such a manner that any two successive code symbols are separated by L-1 symbols in the transmitted sequence, where L is called the degree of interleaving. Upon reception, the interleaved code symbols are reordered into their original sequence, thus effectively spreading or randomizing the errors (in time) to enable more complete correction by a random error-correcting code.

3. (refers to computer writing to a hard disk)

The interleaving in Applicant's invention is clearly definition 2, while the Examiner is using an example of definition 1. It is clear to anyone skilled in the art that Applicants are applying definition 2, if only because no second transmitter has been identified in the claim. Further, the 'interleaver' cited in the limitation of claim 3 is not present in '371, since the *method* of '371 results in the interleaving according to definition 1 and there is no element that can be defined as an 'interleaver.'

Finally, Applicant again notes that the present invention concerns a wireless ATM system with header compression where there is a connection between two LANs. Specifically, Applicant's invention is concerned with connecting two separate LANs with a single (typically satellite) link. Neither of the Raychaudhuri patents deals with such multi-LAN system.

Claim 2 is rejected as being unpatentable over Raychaudhuri '371 in view of Raychaudhuri '791 and French (IEEE, 1996). This rejection is traversed for at least the following reasons.

The claim would be patentable for the reasons already given for claim 1. Moreover, the French reference appears to be merely another description of the work product of Raychaudhuri and describes a wireless ATM system. The QPSK noted by the Examiner in Fig. 4 is related to modulation and not encoding. Thus, the reference fails to remedy the deficiencies of Raychaudhuri '371 and fails to teach the subject matter intended by the Examiner.

Claims 29, 31 and 33 are rejected as being unpatentable over Raychaudhuri '371 in view of Milway (6,122,279). This rejection is traversed for at least the following reasons.

The basis for patentability of parent claim 27 would apply to this rejection as well since Milway does not remedy the basic deficiency of Raychaudhuri '371. There is no teaching of a table index being transmitted and tables at transmitters and receivers being used to permit header compression. Milway is cited merely for its teaching of a hash-based ATM switch. However,

there is no discussion of header compression at all. Moreover, as to the system disclosed, the routing information is very different from header information and offers different features if compressed. The header is never modified.
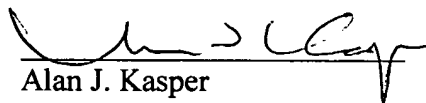
Claims 34-36 are rejected as being unpatentable over Raychaudhuri '371 in view of Miyake (5,271,010). This rejection is traversed for at least the following reasons.

The basis for patentability of parent claim 27 would apply to this rejection as well since Miyake also does not remedy the basic deficiency of Raychaudhuri '371. There is no teaching of a table index being transmitted and tables at transmitters and receivers being used to permit header compression. Miyake is cited merely for its teaching of a compression table and decompression table. However, that teaching relates to a VC identifier converter. Moreover, the use of the tables is quite different from the header lookup table of the present invention, as the table is used for parallel comparison and not lookup. Further, the parallel comparison table is stored using a control path, not by passing messages along the message path, as with the AHCUC in the present invention. Indeed, there is no discussion of header compression at all. The header is never modified.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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